

WHAT IS CLAIMED IS:

~~1. A head positioning control method for a storage device for positioning a head at a specified location on a storage medium and comprising:~~

5 a step of performing coarse control based on a present position of said head without performing integral compensation or bias compensation;

a step of estimating a position of said head for a next sample, and estimating an initial bias value from a difference between a detected position and said estimated position; and

a step of performing settling control with said integral compensation or said bias compensation by using said initial bias value.

2. The head positioning control method of claim 1 wherein:

said step of performing settling control comprises:  
a step of supplying at least one of a target trajectory and feed forward current, whose size is proportional to an initial position or initial velocity at a start of said settling control, to a control system for performing said settling control.

3. The head positioning control method of claim 1 wherein:

said step of performing said settling control performs

settling control by observer control.

4. The head positioning control method of claim 1 wherein;

5 said step of performing said coarse control is velocity control of said head.

5. A head positioning control method for a storage device for positioning a head at a specified location on a storage medium and comprising:

a step of generating a position trajectory and feed-forward current based on a current position and current velocity of said head; and

a step of supplying said position trajectory and feed-forward current to a feedback control system that calculates the amount of control according to a position error between said current position and a target position of said head.

6. The head positioning control method of claim 5 wherein;

said supply step comprises:

a step of correcting said position error by said position trajectory; and

a step of adding said feed-forward current to said control amount that is calculated by said feedback control system from said corrected position error.

~~7. The head positioning control method of claim 5~~

wherein;

said generation step is executed during seek of a  
5 relatively short distance.

8. The head positioning control method of claim 5  
wherein;

said generation step is a step that is executed during  
10 settling control when seeking over a relatively long  
distance.

9. The head positioning control method of claim 5  
wherein;

15 said generation step comprises:

a step of multiplying a unit position trajectory by  
said current position trajectory to generate said position  
trajectory; and

a step of multiplying a unit velocity trajectory by  
20 said current velocity to generate said feed-forward current.

10. The head positioning control method of claim 5  
wherein;

said generation step comprises:

25 a step of generating said position trajectory and  
feed-forward current based on current position and current  
velocity of said head according to said seek distance.

11. ~~A head positioning control device for a storage~~  
device for driving an actuator to position a head at a  
specified location on a disk and comprising:

5 a detection means for detecting a present position of  
said head; and

a control means that performs coarse control without  
integral compensation or bias compensation and then  
performs settling control of said actuator based on said  
10 detected position; wherein

said control means performs settling control with  
integral compensation or bias compensation by estimating  
the position of said head for the next sample; and estimating  
the initial bias value from the difference between said  
15 detected position and said estimated position.

12. The head positioning control device of claim 11  
wherein;

said control means supplies at least a target trajectory  
20 or feed-forward current, that is proportional to the initial  
position or initial velocity at the start of said settling,  
to a control system that performs ~~said settling control~~.

13. The head positioning control device of claim 11  
25 wherein;

said control means performs settling control by  
observer control.

14. ~~The head positioning control device of claim 11~~  
wherein;

said coarse control is velocity control of said head.

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15. A head positioning control device for a storage device for driving an actuator to position a head at a specified location on a storage medium and comprising:

10 a detection means for detecting a current position of said head; and

a control means that performs seek control of said actuator based on said detected position; wherein

15 said control means generates a position trajectory and feed-forward current based on a current position and current velocity of said head, and supplies said position trajectory and feed-forward current to a feedback control system that calculates the amount of control according to a position error between said current position and a target position of said head.

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16. The head positioning control device of claim 15 wherein;

25 said control means corrects said position error by said position trajectory, and adds said feed-forward current to said control amount that is calculated by said feedback control system from said corrected position error.

~~17. The head positioning control device of claim 15~~  
wherein;

said control means executes said supply when seeking  
over a relatively short distance.

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18. The head positioning control device of claim 15  
wherein;

said control means executes said supply during settling  
control when seeking over a relatively long distance.

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19. The head positioning control device of claim 15  
wherein;

said control means multiplies a unit position  
trajectory by said current position to generate said  
15 position trajectory, and multiplies a unit velocity  
trajectory by said current velocity to generate said  
feed-forward current.

20. The head positioning control device of claim 15  
20 wherein;

said control means generates said position trajectory  
and feed-forward current based on the current position and  
current velocity of said head according to said seeking  
distance.

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